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ABSTRACT

The movement to develop national standards in education stems from the nation's continuing effort to identify the outcomes sought in schooling. The sources of the impetus for standards are disappointment with U.S. performance in international assessments, the participation of public leaders and educators in school reform, and the example created by the National Council of Teachers of Mathematics (NCTM), which has successfully developed voluntary national standards over the past several years. Each of these sources points to the fact that a growing number of people recognize that good national standards can: (1) create a coherent system; (2) promote purposeful and constructive change; (3) establish clear goals for learning; and (4) raise the overall quality of education. The purposes of standard setting are to promote equality of educational opportunity and to raise the academic achievement of all children. A critical first step is the creation of a national consensus about what students need to know and be able to do. Implementation will follow. If the NCTM standards serve as a model, expectations for national standards can be met. National standards need not equal standardization, but they should represent clear goals. Educational policy and educational research are both required to develop and implement national standards. (SLD)

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"DEVELOPING NATIONAL STANDARDS IN EDUCATION"
delivered to the
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I told Jim Coleman that my subject this evening would be "Developing National Standards in Education." I am not a sociologist but a historian, and in my estimation, the prospect of national standards represents a historic change in the way that our far-flung and highly decentralized educational system works.

Before getting into the subject at hand, I would like to offer some background. I have been an Assistant Secretary of Education for slightly more than a year. I came to Washington to run the Office of Educational Research and Improvement--or OERI.

OERI was born some two decades ago; it was originally called the National Institute of Education. In preparing to speak tonight, I reviewed testimony delivered by Daniel Patrick Moynihan to a Congressional subcommittee that was considering the creation of the NIE in 1971. Professor Moynihan appeared before the Subcommittee on Education of the House Education and Labor Committee to describe the need for the new NIE. We can easily date Mr. Moynihan's remarks because he begins by apologizing for the typos in his testimony, which he admits he typed by hand.

In retrospect, there are four striking points to be made about Mr. Moynihan's testimony:

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First, he was remarkably optimistic about what could be expected from an investment in educational research. He claimed that there had been "a significant influx of men of large ability" into the field, as a consequence of the intellectual ferment created by the Coleman report of 1965. He predicted that educational researchers were on the verge of major breakthroughs; that within a decade, say by 1981, education researchers would be ready to explain how learning occurs, to identify "what goes on in the chemistry of the brain when a child learns something." "Something happens," he said, "They [the researchers] feel they are going to get it."

Second, Mr. Moynihan suggested that federal expenditures for educational research might begin at about $250 million a year and rise--by 1980--to not less than $1.1 billion a year.

Third, Mr. Moynihan believed, as a result of his participation in a reanalysis of the Coleman report of 1965, that "traditional measures of school quality, such as pupil-teacher ratios [and] levels of educational expenditure" had "very little educational effect." He insisted that educational research would help identify what needed to be done to improve educational outcomes. He said, "We have learned that things are far more complicated than we thought. The rather simple input-output relations which naively, no doubt, but honestly, we had assumed to obtain in education simply, on examination, do not hold up...we confront school systems that are seemingly increasingly chaotic, even anarchic, and which are widely perceived as

failing. It may just be that this is partly a result of the expectations induced by the rather simple faith that went into such legislation as the Elementary and Secondary Education Act of 1965. Or the reasons may be altogether unrelated to anything done or tried in the past. But the facts are there. Things aren't very good, or don't seem very good to a great many persons, including a great many students."

And fourth, he asserted that the essential purpose of a National Institute of Education was to aim not just for equality of opportunity but for "parity of educational outcomes" among different social groups. His exact words were, "We must master the art of education to the point that achievement is more or less evenly distributed among the different groups in our society and not too enormously varied within such groups."

As a historian, it is my habit to return to original intentions, and it is necessary therefore to note that the federal funding for education research never materialized. After I became Assistant Secretary for OERI, I learned to my dismay that there is virtually no support in Congress for educational research nor has there been for the past twenty years. By using the term "virtually," I fear that I have exaggerated the degree of support for educational R&D. A recent study of our agency by the National Academy of Sciences concluded that funding for educational R&D has declined by 82% in constant dollars since 1973. While federal support for R&D has grown steadily in every other field, while the Department of Education's budget has grown

steadily, support for educational R&D has declined with monotonous regularity. Today, the Department of Education spends about $58 million for R&D, a laughable amount. The Department's request for an increase for R&D in 1993 was again rejected, although the amounts involved are so small as to be mistaken for a rounding error in the federal budget.

Thus, there has been no significant federal investment in studying how children learn or how to improve teaching, at least not by the Department of Education. The "men of large ability" to whom Dr. Moynihan referred some twenty-one years ago did not produce the great breakthroughs in educational research that presumably required a large infusion of federal dollars. The woeful description of the schools that he offered has a contemporary ring; many things have changed in these past two decades, but we continue to lament the condition of learning, and for good reason.

What is clear today is that the investment in educational research that was anticipated did not occur. However, our national investment in providing education did continue to grow over these past twenty-one years. Indeed, our investment in education--the total for all public and private expenditures, from kindergarten through universities--has grown from $263 billion to $425 billion in constant 1991-92 dollars. During this period, the K-12 enrollment has actually declined, from 51 million students to 46 million students, while enrollments in higher education have increased from 8.5 million to 13.5 million.

It might interest you to know that higher education, which grew by nearly 60 percent, increased its expenditures in constant dollars by 72%, while K-12--where enrollments declined by 10%--increased its expenditures by 61%

But we obviously have not achieved "parity of outcomes." We continue to see large discrepancies among groups in educational outcomes.

This is the context in which I wish to discuss the movement to develop national standards. The main impetus for standards, I believe, is the same one that animated the creation of the NIE some two decades ago. It stems from our nation's continuing effort to identify the outcomes that we seek in schooling; it stems, furthermore, from our search for an effective means to provide what Senator Moynihan referred to in 1971 as "parity of outcomes." We cannot, after all, pursue parity of <u>outcomes</u> unless we have a sure sense of what those outcomes are.

The movement for national standards has three sources, I believe. First is the impetus that comes from disappointment with American students' performance in international assessments, particularly in mathematics and science.

A second source of this movement emerges from the participation of governors, business leaders, and visionary educators in school reform during the past decade. Those men and women who understood the idea of strategic planning, who knew that a change process must begin by identifying goals, found that education was not accustomed to goal-setting. Those who tried to

set goals and to determine appropriate outcomes met resistance and institutional inertia; they realized very quickly that the schools are accustomed to having a multitude of unordered priorities, a multitude of roles, and a plethora of outcomes, none more important than the others. Those who went seriously about the question of reform discovered that American education is characterized by a lack of consensus on desired outcomes and goals. You might even say that there has been a consensus that no need has precedence over any other need; and that this broad receptivity to bearing all burdens and accepting all social responsibilities has served to unfit the schools for achieving any of its ends.

A third reason for the movement for national standards is the example created by the National Council of Teachers of Mathematics, which has successfully developed voluntary national standards over the past several years.

These three causes could be seen at work in the establishment by Congress last year of the National Council of Educational Standards and Tests, which issued its report in January 1992, calling for the creation of voluntary national standards and a system of national examinations.

If I may, I would like to go through this scenario in closer detail.

First, the international assessments. Over the past twenty-five years, the United States has participated in half a dozen international assessments of student achievement. More often than

not, our students rank below the mean, sometimes quite near the bottom. The most recent international assessment of mathematics and science was released earlier this year. It compared 9-year-old and 13-year-old students in twenty countries. Of these countries, fifteen tested representative samples. Thirteen-year-old American students ranked 13th out of 15 in science, and 14th out of 15 in mathematics.

Critics of these assessments have been quite vocal, claiming that the tests are invalid and the rankings are insignificant. As I understand them, they have three basic complaints. First, that it is not fair to compare our students to students from cultures where education is valued. I would argue, to the contrary, that we should learn to value education, or continue to pay the consequences in low student achievement.

A second criticism is that it is unfair to compare our students to their counterparts from nations that have a strong coherent curriculum in mathematics and science. Again, the critics miss the point. The test is not at fault for having discovered the price that we pay for <u>not</u> having a strong coherent curriculum in mathematics and science. If anything, the lesson from these international assessments is that you learn what you study, and you can't learn what you don't study. Indeed, American students are not on a level playing field when they are matched with students from countries that offer a program of studies that is coherent, cumulative, and thoughtful.

A third criticism one hears is that our country teaches

everyone and tests everyone, unlike every other country in the assessment. This is simply not true, although its frequent repetition has caused many people to think it is true. In the last international assessment of science and math, for example, fifteen of the twenty participating countries tested comprehensive populations, and in all fifteen of those nations 90% or more of the age-eligible children are in school.

So, the international assessments laid the groundwork for those who felt that something was fundamentally wrong in our educational system. The momentum for change was picked up by those governors, educators, and business leaders who became involved in school reform after the publication of A Nation at Risk in 1983. For a decade, the states sought to reform their schools. They began by raising graduation requirements, initiating merit pay and career ladders, and trying a host of other reforms; recently they have promoted school-based management and a variety of other efforts to restructure the social organization of schools.

Many reformers came to believe that such changes were too piecemeal, too uncoordinated, too incremental. So, in recent years, we have heard more about the need for systemic change, for changes that essentially alter the entire system of education. And systemic reformers characteristically step back to look at the system as a whole and to see how they can intervene in a way that makes the system more coherent and to focus attention on improvement of educational outcomes. Bill Honig, the State

Superintendent in California, was the first to launch systemic reform focused on outcomes; he focused first on changing what chidlren learn, by revising the state's curriculum frameworks; and he then changed how students are assessed, so that what is taught in the best classrooms is the same as what is tested by the state. Fortunately, there is good research to support systemic reform, such as the work done by the federally-funded Center for Policy Research in Education at Rutgers University.

Goal-setting went national in 1989, when the President invited the nation's fifty governors to Charlottesville, Virginia, where they agreed on the importance of national goals for education. Of particular note here are goals three and four, which states that all students will demonstrate competency in challenging subject matter, including mathematics, science, English, history, and geography. Goal four somewhat redundantly emphasizes the importance of achievement in math and science. The two goals together have become the basis for much of the broad and bipartisan support to establish national standards in subject areas.

For the fact is that you cannot achieve goal three or goal four unless a consensus is established about what students are expected to learn.

In the absence of a consensus about what children should learn, the educational system is inherently incoherent:

*Teacher education prepares would-be teachers for indeterminate roles, to carry a variety of social burdens,

without any clear definition of what they are to teach.

*Textbooks base their content on the combined dictates of 22 states which formally adopt textbooks and on the idiosyncratic demands of large city school districts, not on the content that has been shaped thoughtfully and purposefully by the teachers and scholars who know the field best.

*Assessments are prepared by commercial test-makers who seek to provide national norms, and these national tests are not based on what is specified in the curriculum or taught in the classroom. Over time, teachers have been "teaching to the test," so that these tests eventually shape the curriculum, instead of the curriculum determining the tests.

*In many states, staff development had no connection to the curriculum, because of the absence of a consensus about what was to be taught.

So how in this highly decentralized nation--a nation of 15,000 school districts and fifty state educational authorities, each jealous of its domain--how in this contentious and individualistic nation were we to derive a consensus about what students should learn?

Fortunately, the math teachers came to the rescue and pointed the way. In the mid-1980s, the National Council of Teachers of Mathematics (known as the NCTM) began the arduous process of standard-setting on its own. Having experienced the failure of the New Math, which was criticized for being too abstract, and having watched with dismay as the nation's schools

went back to basics with a vengeance, the math teachers deliberated about what they could do to change the teaching of math for the better. The math teachers were helped in their deliberations by good educational research, in this case the work of the federally-funded National Center for Research in Mathematical Sciences Education at the University of Wisconsin, proof that even a small investment in good research has been worthwhile.

After many meetings and much discussion, they hit upon the answer: they decided to develop national standards. They devised an elaborate consensus and review process that ultimately involved thousands of math teachers. By 1989, they were able to publish national standards that represented a dramatic change in the teaching of mathematics.

Instead of computation and memorization of abstractions, the new standards emphasize problem-solving, hands-on activities, use of manipulatives, and the development of mathematics as a way of thinking and reasoning.

The new standards encourage the introduction of elements of algebra, geometry, probability and statistics in the elementary grades.

The new standards set high expectations for all children, instead of dividing children into those who are bound for college and those who are not.

The NCTM standards have been widely accepted by math teachers and by educational leaders in districts and states.

Consequently, they have had a dynamic effect on the entire educational system. The NCTM standards are changing teacher education, because new teachers will be expected to learn to teach to them. The NCTM standards have changed teacher training in 41 states, which use them as their basic standard. The NCTM standards have changed the way mathematics textbooks are written, with more attention to problem-solving and real-world situations. The NCTM standards are changing the nature of assessments, reinforcing the move away from standardized multiple-choice tests and toward performance assessments that probe for students' explanations, interpretations, decisions and understanding.

I have seen the NCTM standards at work in a variety of settings. At Mission High School in San Francisco, I saw inner-city students working on a fascinating problem that required them to use algebra and geometry to find a solution. These were youngsters who would ordinarily be tracked into remedial math or consumer math. Every one of those students discovered that they could learn more and use their minds well. The NCTM standards caused a change in instructional methods, a change in materials, a change in teacher training, and a raising of expectations.

What the NCTM standards demonstrate is the power of standards. Good standards establish a goal; they create a consensus about what the educational outcomes <u>should</u> be. It now seems obvious that in the absence of such a consensus, we are left with the unsatisfactory goal of getting high scores on standardized tests of basic skills and allowing students to

believe that learning is nothing more than a guessing game, a game that they can win by mastering test-taking techniques.

It seems clear to a growing number of people, at the federal, state, and local level, that good national standards have the power to create a coherent system, to promote purposeful and constructive changes in the system, to establish clear goals for learning, and to raise the overall quality of education.

When Lamar Alexander was appointed Secretary of Education, he determined that one of his goals would be to begin the development of voluntary national standards. Towards that end, he joined with Congress in creating the National Council for Educational Standards and Testing, to examine the feasibility and desirability of setting standards and creating a national examination system. That panel, co-chaired by Governors Carroll Campbell of South Carolina and Roy Romer of Colorado, issued its report earlier this year, which strongly endorsed both national standards and a national system of assessment.

At the Department of Education, we have worked to implement the recommendations of the standards and testing panel. Last fall, the Department made a grant to the National Academy of Sciences to develop content standards in science, that is, what American students should know and be able to do in science. This summer, the Academy has gathered representatives from every science education organization, along with teachers and scholars, to work on the consensus-building process.

Also last fall, the Department made a grant, in

collaboration with the National Endowment for the Humanities, to the National Center for History in the Schools, based at UCLA to develop voluntary national standards in American history and world history. The Center has brought together every organization concerned with history, social studies, and social sciences in elementary and secondary education and will engage in a broad review process involving thousands of teachers and scholars and members of the public.

This spring, the Department, with support from other federal agencies, has made grants to develop national standards in the arts, in civics, and in geography. It is our hope that before long we will be able to announce a grant in the field of English. In each case, funding went to professional, scholarly organizations that demonstrated the ability to bring the field together to work in concert on the difficult task of building a consensus about what children from kindergarten through twelfth grade should know and be able to do.

The purpose of standard-setting, it should be clear, is two-fold: to promote equality of educational opportunity and to raise the academic achievement of all children..

The small federal investment in educational R&D fortunately has included support for a sturdy program of statistics and data-collection. From the valuable work of the National Center for Education Statistics, we known that there are wide disparities in course-taking in our schools. For example, we learn from NELS-88 (National Educational Longitudinal Study) that curricular

tracking can be detected as early as the eighth grade, where children get very different exposure to algebra, for example. Only 18% of the children whose parents did not graduate FROM high school take Algebra I, compared to 43% of the children whose parents graduated FROM college, and to 59% of children of Ph.D.s, M.D.s, and other professionals. Not surprisingly, the same skewing can be found when one looks at family income or race/ethnicity. In the latter category, it is Asian students who are likeliest to take algebra in eighth grade (46.8%), followed by white students (33.9%), then by black, Hispanic and Native American students (about 25% for each group).

By eleventh grade, looking now at transcript studies drawn by the National Assessment of Educational Progress, we can see the effects of curricular tracking in public schools. By that time, only 63% of the students whose parents did not finish high schools have taken Algebra I, compared to 91% of the students whose parents graduated from college.

Does this disparity have to exist? Is it a necessary part of schooling in America? Consider the same two groups of students enrolled in Catholic schools. The figures for Catholic school eleventh graders are as follows: Of those students whose parents did not graduate from high school, 96% have taken Algebra I, compared to those whose parents graduated FROM college: 97%.

Why is there so much disparity in the public schools, and so little in the Catholic schools? I suggest it is because the Catholic schools did not ask anyone if they wanted to take

Algebra I. In other words, they have standards that apply to everyone, and these standards provide a guarantee of educational opportunity and equity.

All of the standard-setting projects are concerned about equity. The math teachers want to break the connection between coursetaking and such factors as socioeconomic status, parent education, income, and ethnicity. They believe that students can learn much more, and that expectations can be raised much higher for all students. Similarly, the leading science organizations want to build knowledge of science and curiosity about natural phenomena throughout the K-12 curriculum.

Each of these professional groups wants to break the iron grip of tracking and to expose more and more children to a rich diet of inquiry, exploration, problem-solving and active learning. There is general agreement among them that we do not need to ration educational experiences and that we can instead make available to all children the opportunity for a full and rich curriculum.

The first critically important step, then, is the creation of a national consensus among teachers, scholars, and the educational community about what students need to know and be able to do. This is beginning to happen. It will succeed to the extent that the products of these consensus-building activities are accepted by the professional field. If the standards are powerful, they will be embraced, as the NCTM standards have been. If they are not, they will be rejected and ignored. They will

stand or fall based on professional review, not by any legal mandate.

What must happen next is implementation, and this depends on actions taken by the states, where most educational authority resides. Many states regularly design curriculum frameworks. Some states, notably California, have used the curriculum process to build high standards for the state's educational system; indeed, the highly regarded California curriculum frameworks are a model for the nation. The National Science Foundation has made sizable grants to twenty states, to stimulate systemic reforms, including the development of state curriculum frameworks. Over the next few years, the Department of Education hopes to provide funding for state curriculum frameworks in every important subject area. Over time, the state curriculum frameworks will both reflect and influence the continually evolving national standards.

If the NCTM standards serve as a model, we can expect that the development of high national standards will influence assessments and will drive out the mechanistic standardized tests that have been so long lamented. What will emerge, and what is already emerging in a number of states, is a commitment to constant improvement in assessment, and a commitment to discover ways to gauge student performance that are better than current tests. Of course, we need R&D to encourage the evolution of improved assessments. My agency requested $5 million to invest in such research in 1993, but have thus far not received any support from Congress. States will be hard-pressed to pay for what is

rightfully a federal responsibility.

We still need federal support of R&D to achieve the ends we seek. We must continue to work to persuade the Congress that funding is needed in order to understand the consequences of our policies. In the meanwhile, events have moved to bring us to a historic turning of the road through the effort to set voluntary national standards. Perhaps, twenty years from now, someone else will stand before you and assess these efforts harshly. I certainly hope not.

At a recent meeting of the Asia-Pacific nations in Washington, fourteen countries--including Japan, Korea, China, Taiwan, Thailand, New Zealand, Canada, Australia, and the U.S.--discussed standards for the twenty-first century. Every one of the members was either setting or had already established national standards for what students should learn. When asked why they had set these standards, all gave the same answer: first, to raise academic achievement for all students; and second, to provide equal educational opportunity for all students.

It seemed perfectly obvious to those who had done it. We still must persuade many in our country that standards do not mean standardization; that they do not mean setting the bar so high that more children will fail; that they do not mean more reliance on standardized tests. What they do mean is that children, teachers, and parents will understand what is expected to succeed; that textbooks and educational technology will be based on that understanding; that assessments will be based on

the curriculum and on what children have been taught, rather than what has been standardized; and that teachers will learn what they are expected to teach.

As a historian, I know where good intentions lead. I know too how seldom we achieve what we set out to do. And I understand how often unintended consequences prevail. Yet try we must.

As we promote the development of national standards, we seek the purpose that Senator Moynihan so aptly described in 1971: parity of educational outcomes. To quote the Senator once again: "We must master the art of education to the point that achievement is more or less evenly distributed among the different groups in our society and not too enormously varied within such groups."

Perhaps it is policy, not research, that must lead the way. To be sure, we need both.